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### AMENDMENTS TO CLAIMS

1. (Currently amended) A process for milling copper metal from a substrate having an exposed copper surface, the process comprising:

absorbing a halogen gas onto the exposed copper surface to generate reaction products of copper and the halogen gas;

removing unreacted halogen gas from the surface by scanning the surface with an electron beam; and

directing a focused ion beam onto the surface to selectively remove a portion of the surface comprising the reaction products.

2. (Original) The process according to Claim 1, wherein the halogen gas consists essentially of iodine.

3. (Original) The process according to Claim 1, wherein the halogen gas is selected from the group consisting of chlorine, fluorine, iodine and mixtures thereof.

4. (Canceled)

5. (Previously presented) The process according to Claim 4, wherein the focused ion beam current comprises an energy from about 500 to 3,000 picoAmps.

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6. (Currently amended) A process for focused ion beam milling multiple layers of a substrate, wherein the substrate comprises an insulating layer in contact with an underlying copper surface, the process comprising:

exposing the substrate to a noble gas halide within an enclosed chamber;

directing a focused ion beam onto a portion of the insulating layer and removing the portion to expose the underlying copper surface;

absorbing a halogen gas onto the exposed copper surface to generate reaction products of copper and the halogen gas;

removing unreacted halogen gas from the surface by scanning the surface with an electron beam at an energy effective for removing the unreacted halogen from the surface; and

directing a focused ion beam onto the surface to selectively remove a portion of the surface comprising the reaction products.

7. (Original) The process according to Claim 6 wherein the halogen gas consists essentially of iodine.

8. (Original) The process according to Claim 6, wherein the noble gas halide is selected from the group consisting of XeF<sub>2</sub>, XeF<sub>4</sub>, XeF<sub>6</sub>, KrF<sub>2</sub>, KrF<sub>4</sub> and KrF<sub>6</sub>.

9. (Original) The process according to Claim 6, wherein the halogen gas is selected from the group consisting of chlorine, fluorine, iodine and mixtures thereof.

10. (Original) The process according to Claim 6, wherein the focused ion beam comprises gallium ions.

11. (Cancel)

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12. (Original) The process according to Claim 6, wherein the beam current comprises an energy from about 500 to 3,000 picoAmps.

13. (Previously presented) The process according to Claim 1, wherein absorbing the halogen gas comprises forming at least a saturated monolayer of the halogen gas onto the surface.